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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/789,895	02/27/2004	Naoki Toyoshima	303.883US1	9317

21186 7590 08/23/2007

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EXAMINER	
CABRERA, ZOILA E	
ART UNIT	**PAPER NUMBER**
2125	

MAIL DATE	DELIVERY MODE
08/23/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

mN

Office Action Summary	Application No.	Applicant(s)	
	10/789,895	TOYOSHIMA ET AL.	
	Examiner	Art Unit	
	Zoila E. Cabrera	2125	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 May 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-64* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-64* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *5/29/07*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Final Rejection

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1-60 are remained for consideration.

New claims 61-64 have been added.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-14, 17-24, 26-42, 45-51, 53-64 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Monette et al. (US 2003/0102367 A1)** in view of **Schoop et al. (US 6,671,569).**

As for claims 1, 11, 18, 24, 29, 39, 45, 51, **Monette** discloses

A method for detecting conditions in an electronic device fabrication facility, including: measuring fabrication data (Fig. 8, testing apparatus); determining a route or exact route a workpiece follows during fabrication ([0183]; Fig. 8 routing device); storing measured data relevant to the route the workpiece followed or actually followd during fabrication in a data set of the workpiece ([0215]; [0183]); analyzing the data set of the workpiece; and determining current conditions using the analysis ([0183];[0170];[0215]); responding to the comparison ([0143]; [0133]-[0134]).

As for claims 2-10, 12-14, 17, 19-23, 26-28, 30, 38, 40-42, 46-50, 53-54, **Monette** further discloses:

2. (Previously Presented) The method of claim 1, wherein the route a particular workpiece follows is a subset of the entire manufacturing process (0183];[0191]).

3. (Previously Presented) The method of claim 1, wherein determining includes; identifying operations that are linked in some manner; determining subdivisions of the identified operations; and developing a listing of all possible routes through the subdivisions of the operations that workpieces may traverse during fabrication ([0130]-[0131]).

4. (Previously Presented) The method of claim 3, wherein operations includes machines, chambers, processes associated with the route the workpiece follows (Fig. 8).

5. (Original) The method of claim 3, wherein the manner of linking is by physical location ([0183]).

6. (Original) The method of claim 3, wherein the manner of linking is by machine type ([0208];[0216]).

7. (Original) The method of claim 3, wherein the manner of linking is by time of processing ([0047];[0091]).

8. (Original) The method of claim 3, wherein the linking is by any other condition relevant to the fabrication process ([0091]).

9. (Previously Presented) The method of claim 3, wherein the determining the subdivisions includes identifying all parts of the operation, machine, process, chamber and the like that have a substantially similar end product ([0102]-[0119]).

10. (Previously Presented) The method of claim 3, wherein all possible routes only includes probable routes through the subdivisions ([0130]-[0131]).

12. (Original) The method of claim 11, wherein the fabrication data items are measured fi'om production data sources (Fig. 8).

13. (Original) The method of claim 12, wherein the production data source is a test probe (fig. 8).

14. (Original) The method of claim 12, wherein the production data source is a parametric measuring device ([0215]).

17. (Original) The method of claim 12, wherein the production data source includes any other data source that is relevant to the fabrication process and its condition([0215]).

19. (Previously Presented) The method of claim 18, wherein measured data relevant to the route a workpiece actually followed during fabrication is relevant based on physical proximity to the route ([0183]).

20. (Previously Presented) The method of claim 18, wherein measured data relevant to the route a workpiece actually followed during fabrication is relevant based manufacturing result ([0183]).

21. (Original) The method of claim 18, wherein the data processing device is a computer system containing a relational database on a storage device and executed on a processor (Fig. 9).

22. (Previously Presented) The method of claim 18, wherein storing measured data in a data processing device includes: adding a data item from the measured route fabrication data to the data set of the workpiece; and relating the added data item to the previously stored data items by some point of data commonality ([0091]).

23. (Original) The method of claim 22, wherein the point of data commonality is based on time([0091]).

26. (Original) The method of claim 24, wherein the analysis is a trend analysis([0135]).

27. (Original) The method of claim 24, wherein the analysis is a correlation study([0133]-[0134]).

28. (Original) The method of claim 24, wherein examining includes comparing the analysis of the data set of the workpiece to expected conditions([0133]-[0134]).

As for claims 30-38, 40-42, 46-50, 53-54, the same citations applied to claim 2-10, 12-14, 19-23, and 26-27, above apply as well for these claims.

As for claims 55-60, Monnette discloses:

55. (Original) The method of claim 51, wherein responding includes: alerting a user when the comparison shows an unexpected condition([0135]).

56. (Original) The method of claim 55, wherein the alerting is by visual cues on an output device of the data processor([0135]).

57. (Original) The method of claim 55, wherein the alerting is by the data processor sending a message to the user of an unexpected condition([0141]).

58. (Original) The method of claim 55, wherein the data processing device non-manually halts production when an unexpected condition occurs(0143]).

59. (Original) The method of claim 51, wherein responding includes: **not** alerting a user when the comparison shows expected conditions in the fabrication facility ([0135]).

60. (Original) The method of claim 51, wherein responding includes: non-manually continuing fabrication when the comparison shows expected conditions in the fabrication facility (Fig. 8).

Monette discloses most of the limitations of claims 1, 11, 18, 24, 29, 39, 45, 51. However, **Monette** fails to disclose some limitations of claims 1, 11, 18, 24, 29, 39, 45, 51. But **Schoop** discloses such limitations as follows:

As for claim 1, 29, wherein the route includes at least one operation including a plurality of subdivisions, each of the plurality of subdivisions operable to perform a substantially similar operation to the workpiece and wherein the route includes no more than one of the plurality of subdivisions (Col. 3, lines 55-Col. 4, line 15, i.e., optimal route to machine Mz); and applying a process control to the route based on the analysis (Col. 4, lines 16-19). Schoop further discloses trigerring a warning when the current conditions depart from the expected conditions (Col. 1, lines 45-56).

As for claims 11, 18, 24, determining a particular route a workpiece followed during fabrication wherein the particular route is **one of** a plurality of routes, wherein the

particular or exact route and each of the plurality of routes include at least one operation including a plurality of subdivisions, each of the plurality of subdivisions operable to perform a substantially similar operation to the workpiece and wherein the particular route includes no more than one of the plurality of subdivisions (Col. 3, lines 55-Col. 4, line 15, i.e., optimal route to machine Mz). Please note that the workpiece is handled by one workpiece agent during the entire transportation or production process. This workpiece agent communications with a transportation agent, in order to establish an optimal transportation route to a desired destination (Col. 1, lines 57-61). Therefore for each plurality of routes a workpiece agent stores measured data relevant to the particular route.

As for claims 39, 45, 51 the same citations applied above for claims 1, 29, 11, 18 and 24 apply as well for these claims.

As for new claims 61-64,

61. (New) The method of claim 1, wherein applying a process control to the route based on the analysis includes continuing a particular manufacturing process based on the analysis (Col. 6, lines 4-13).

62. (New) The method of claim 1, applying a process control to the route based on the analysis includes stopping a particular manufacturing process based on the analysis (Col. 6, lines 25-26).

63. (New) The method of claim 29, wherein responding to the comparison when the current conditions depart from the expected conditions includes sending a message over a network (Col. 1, lines 45-56).

64. (New) The method of claim 29, wherein responding to the comparison when the current conditions depart from the expected conditions includes a non-manual shutting down of one or more fabrication machines in a group related to the particular route (Col. 6, lines 25-26).

Therefore, it would have been obvious to a person of the ordinary skill in the art at the time the invention was made to combine the teachings of **Monette** with the method of monitoring a workpiece during a production process of **Schoop** because it would provide an optimal transportation route to a a desired destination (**Schoop,** Col. 1, lines 57-67).

3. Claims 15-16, 25, 43-44 and 52 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Monette et al. (US 2003/0102367 A1) and Schoop (US 6,671,569)** in view of **Levy (US 2002/0188417 A1).**

As for claims 15-16, 25, 43-44 and 52, **Monette** and **Schoop** discloses the limitations of claims 11, 12, 24, 39-40 and 51 above but fails to disclose that the film thickness or critical dimensions are being measured and that the analysis is a statistical analysis. However, Levy discloses such limitations (Fig. 10, Abstract). Therefore, it would have been obvious to a person of the ordinary skill in the art at the time the invention was made to combine the teachings of **Monette and Schoop** with the system of **Levy** because it would provide an improved system for monitoring semiconductor fabrication process (Abstract).

Response to Arguments

4. Applicant's arguments with respect to claim1-60 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning communication or earlier communication from the examiner should be directed to Zoila Cabrera, whose telephone number is (571) 272-3738. The examiner can normally be reached on M-F from 8:00 a.m. to 5:30 p.m. EST (every other Friday).

If attempts to reach the examiner by phone fail, the examiner's supervisor, Leo Picard, can be reached on (571) 272-3749. Additionally, the fax phones for Art Unit 2125 are (571) 273-8300. Any inquiry of a general nature or relating to the status of this application should be directed to the group receptionist at (703) 305-9600.

Zoila Cabrera
Primary Examiner
8/20/07

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